

Unit 2: Atomic Structure Test Study Guide

Atomic Structure and Atomic Theory:

1. What is the charge of an atom?
2. Which subatomic particles make up the nucleus?
3. What is the charge of the nucleus?
4. Complete the chart:

Symbol	Atomic #	Atomic Mass	p	n	e
Na	11	23	—	—	—
Co	—	59	—	—	—
—	38	87	—	—	—
Ga	—	70	—	—	—

5. What is an isotope?

6. How many electrons can fit in the:

S sublevel _____ P sublevel _____ D sublevel _____

7. How many orbitals are possible on each energy level?

S _____ P _____ D _____

8. What is the maximum number of electrons allowed on a Lewis Dot Diagram?

9. Write the electron configuration, orbital notation (arrows), and Lewis Dot Diagram for the following:

Li, O, Cl, Na, N, Mg, B, Si

10. Identify who discovered different parts of the atom and describe the experiments each person performed.

Isotopes Calculations:

1. What is the average mass of Strontium if 30.0% is Sr-87 and 70.0% is Sr-89?

2. What is the average mass of Magnesium if 20.0% is Mg-23, 25.0% is Mg-24, and 55.0% is Mg-25?

Jumping Electrons:

1. Draw the arrow diagram for Argon in its normal state. Then draw an arrow diagram where one of its electrons jumps to a higher energy level.

2. Draw a sample model of a light wave and label wavelength, crest, and trough.

3. If the frequency of a light wave is 3.35×10^{14} Hz, what is the wavelength?

4. If the wavelength of a light wave is 550 nm, what is the frequency?

5. If the wavelength of a light wave is 4500 Angstroms, what is the frequency?

6. If a light wave has a frequency of 4.3×10^{14} Hz, what is the energy of the wave?

7. Which of the following wavelengths has the greatest energy: 400 nm, 500 nm, or 600 nm

8. If a light wave has a wavelength of 575 nm, what is the energy of the wave?

9. Why do elements release electromagnetic radiation?

10. Be able to identify elements and compounds based on their emission spectrums.